

Study Area: **PG&E Kern**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A	N/A	
KRN-T-01	LRDO JCT-KERN OIL 115 kV #1 Line	P1-1:A15:25:_MT POSO 13.80 Generator ID 1 and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P3	N-1/G-1	107.03	107.24	N/A	N/A	N/A				Action Plan. North East Kern Voltage Conversion Project
KRN-T-02	PTRL JCT-POSOMTJT 115 kV #1 Line	P1-1:A15:25:_MT POSO 13.80 Generator ID 1 and P1-2:A15:40:_Kern Oil-Witco 115 kV Line	P3	N-1/G-1	99.82	100.05	N/A	N/A	N/A				Action Plan. North East Kern Voltage Conversion Project
KRN-T-03	PTRL JCT-LIVE OAK 115 kV #1 Line	P1-1:A15:25:_MT POSO 13.80 Generator ID 1 and P1-2:A15:40:_Kern Oil-Witco 115 kV Line	P3	N-1/G-1	99.81	100.03	N/A	N/A	N/A				Action Plan. North East Kern Voltage Conversion Project
KRN-T-04	WESTPARK-KERN PWR 115 kV #1 Line	P1-1:A15:45:_PSE-BEAR 13.80 Generator ID 1 and P1-2:A15:34:_Kern PP-Westpark #2 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Action Plan (Summer setup). Kern PP 115 kV Area Reinforcement Project
KRN-T-05	WESTPARK-KERN PWR 115 kV #2 Line	P1-1:A15:45:_PSE-BEAR 13.80 Generator ID 1 and P1-2:A15:33:_Kern PP-Westpark #1 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Action Plan (Summer setup). Kern PP 115 kV Area Reinforcement Project
KRN-T-06	KRN OL J-KERNWATR 115 kV #1 Line	P1-1:A15:39:_PSE-LVOK 9.11 Generator ID 1 and P1-2:A15:44:_Kern-Live Oak 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Wheeler Ridge Jct Station Project/Kern PP 115 kV Area Reinforcement Project
KRN-T-07	LIVE OAK-KERN PWR 115 kV #1 Line	P1-1:A15:39:_PSE-LVOK 9.11 Generator ID 1 and P1-2:A15:40:_Kern Oil-Witco 115 kV Line	P3	N-1/G-1	121.47	121.98	N/A	N/A	N/A				Action Plan (Summer setup). Kern PP 115 kV Area Reinforcement Project
KRN-T-08	COLUMBUS-MAGUDN J 115 kV #1 Line	P1-1:A15:45:_PSE-BEAR 13.80 Generator ID 1 and P1-2:A15:42:_Kern-Magunden-Witco 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Wheeler Ridge Junction Station Project
KRN-T-09	KERN PWR 115/230 kV #3 Bank	P1-1:A15:18:_KERNFRNT 9.11 Generator ID 1 and P1-3:A15:21:_Kern PP 230/115 kV Transformer #4	P3	N-1/G-1	83.22	N/A	83.98	88.30	92.01				Replace terminal limiting equipment to benefit from the full 420MVA transformer rating as part of the Kern PP 230kV Area Reinforcement Project.
KRN-T-10	KERN PWR-KERNWATR 115 kV #1 Line	P1-1:A15:39:_PSE-LVOK 9.11 Generator ID 1 and P1-2:A15:44:_Kern-Live Oak 115 kV Line	P3	N-1/G-1		N/A	N/A	N/A	N/A				Action Plan (summer setup). Kern PP 115 kV Area Reinforcement Project
KRN-T-11	KERN PW2-KERN PW1 70 kV #1 Line	P1-1:A15:11:_KERNCNYN 11.00 Generator ID 1 and P1-3:A15:25:_Kern PP 115/70 kV Transformer #2	P3	N-1/G-1	110.40	98.83	N/A	N/A	N/A				Action Plan (summer setup). Kern PP 115 kV Area Reinforcement Project
KRN-T-12	BUENAVJ2-MIDWAY 230 kV #1 Line	P1-1:A15:58:_ORION 0.44 Generator ID 1 and P1-2:A15:89:_Midway-Wheeler Ridge #1 230 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Midway-Kern PP #1, #3 & #4 230 kV Line Capacity Increase Project
KRN-T-13	BUENAVJ2-WHLR RJ2 230 kV #1 Line	P1-1:A15:58:_ORION 0.44 Generator ID 1 and P1-2:A15:89:_Midway-Wheeler Ridge #1 230 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Midway-Kern PP #1, #3 & #4 230 kV Line Capacity Increase Project

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					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A	N/A	
KRN-T-14	34716 LRDO JCT 115 34718 KERN OIL 115 1	P1-1:A15:25:_MT POSO 13.80 Generator ID 1 and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	107.03	107.24	N/A	N/A	N/A				Action Plan. North East Kern 115 kV Voltage Conversion Project
KRN-T-15	PTRL JCT-POSOMTJT 115 kV #1 Line	P1-2:A15:40:_Kern Oil-Witco 115 kV Line and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. North East Kern 115 kV Voltage Conversion Project
KRN-T-16	PTRL JCT-LIVE OAK 115 kV #1 Line	P1-2:A15:40:_Kern Oil-Witco 115 kV Line and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	122.65	122.90	N/A	N/A	N/A				Action Plan. North East Kern 115 kV Voltage Conversion Project
KRN-T-17	34709 7STNDRD 115 34752 KERN PWR 115 1	P1-2:A15:40:_Kern Oil-Witco 115 kV Line and P1-2:A15:44:_Kern-Live Oak 115 kV Line	P6	N-1-1	94.13	94.31	N/A	N/A	N/A				Action Plan. North East Kern 115 kV Voltage Conversion Project
KRN-T-18	LIVE OAK-KERN PWR 115 kV #1 Line	P1-2:A15:40:_Kern Oil-Witco 115 kV Line and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	105.48	105.83	N/A	N/A	N/A				Action Plan. North East Kern 115 kV Voltage Conversion Project/Kern PP 115 kV Area Reinforcement
KRN-T-19	KERN OIL-DSCVRYTP 115 kV #1 Line	P1-2:A15:44:_Kern-Live Oak 115 kV Line and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. North East Kern 115 kV Voltage Conversion Project/Wheeler Ridge Jct Station Project
KRN-T-20	KRN OL J-KERNWATR 115 kV #1 Line	P1-2:A15:44:_Kern-Live Oak 115 kV Line and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. North East Kern 115 kV Voltage Conversion Project/Wheeler Ridge Jct Station Project
KRN-T-21	KERN PWR-KERNWATR 115 kV #1 Line	P1-2:A15:42:_Westpark-Magunden 115 kV Line and P1-2:A15:56:_Magunden-Wheeler Ridge Jct 115 kV Line	P6	N-1-1	102.49	102.44	86.14	90.60	96.26				Kern PP 115 kV Area Reinforcement Project
KRN-T-22	DSCVRYTP-GODN_BER 115 kV #1 Line	P1-2:A15:44:_Kern-Live Oak 115 kV Line and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Mitigation under review
KRN-T-23	KERN PP-STCKDLJ1 230 kV #1 Line	P1-2:A15:16:_Midway-Kern #3 230 kV Line and P1-2:A15:17:_Midway-Kern #4 230 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Wheeler Ridge Jct Subatation Project/Midway-Kern PP #1, #3 & #4 230 kV Line Capacity Increase Project
KRN-T-24	SEMITROPIC_D-SEMITROPIC_E 115 kV #1 Line	P1-2:A15:28:_Kern-Kern Oil-Famoso 115 kV Line and P1-2:A15:38:_Smyrna-Semitropic-Midway 115 kV Line	P6	N-1-1	N/A	N/A	126.99	130.06	127.50				Mitigation under review
KRN-T-25	MIDWAY-STCKDLJ1 230 kV #1 Line	P1-2:A15:16:_Midway-Kern #3 230 kV Line and P1-2:A15:17:_Midway-Kern #4 230 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Wheeler Ridge Jct Subatation Project/Midway-Kern PP #1, #3 & #4 230 kV Line Capacity Increase Project

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					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A	N/A	
KRN-T-26	30970 MIDWAY 230 30944 BKRSFDJ2 230 1	P1-2:A15:16:_Midway-Kern #3 230 kV Line and P1-2:A15:15:_Midway-Kern #1 230 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Wheeler Ridge Jct Subatation Project/Midway-Kern PP #1, #3 & #4 230 kV Line Capacity Increase Project
KRN-T-27	BUENAVJ2-MIDWAY 230 kV #1 Line	P1-3:A15:18:_Wheeler Ridge 230/70 kV Transformer #4 and P1-2:A15:89:_Midway-Wheeler Ridge #1 230 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Midway-Kern PP #1, #3 & #4 230 kV Line Capacity Increase Project
KRN-T-28	WSCOPRSN-CHARKA 115 kV #1 Line	P1-2:A15:28:_Kern-Kern Oil-Famoso 115 kV Line and P1-2:A15:101:_Semitropic-Wasco 115 kV Line	P6	N-1-1	N/A	N/A	112.12	114.61	112.46				Mitigation under review
KRN-T-29	WESTPARK-KERN PWR 115 kV # 2 Line	P1-2:A15:42:_Kern-Magunden-Witco 115 kV Line and P1-2:A15:33:_Kern PP-Westpark #1 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Kern PP 115 kV Area Reinforcement Project
KRN-T-30	KERN PWR 115/230 kV #3 Bank	P1-3:A15:22:_Kern PP 230/115 kV Transformer #4 and P1-3:A15:23:_Kern PP 230/115 kV Transformer #5	P6	N-1-1	139.31	123.73	136.19	143.82	150.68				Action Plan. Kern PP 230 kV Area Reinforcement Project. Install SPS as part of the Project
KRN-T-31	KERN PWR 115/230 kV #4 Bank	P1-3:A15:20:_Kern PP 230/115 kV Transformer #3 and P1-3:A15:22:_Kern PP 230/115 kV Transformer #5	P6	N-1-1	106.21	95.16	104.07	109.90	115.12				Action Plan. Kern PP 230 kV Area Reinforcement Project. Install SPS as part of the Project
KRN-T-32	KERN PWR 115/230 kV #5 Bank	P1-3:A15:21:_Kern PP 230/115 kV Transformer #3 and P1-3:A15:22:_Kern PP 230/115 kV Transformer #4	P6	N-1-1	100.28	89.85	98.26	103.76	108.69				Action Plan. Kern PP 230 kV Area Reinforcement Project. Install SPS as part of the Project
KRN-T-33	KERN PWR-TEVISJ2 115 kV #1 Line	P1-2:A15:66:_Lamont-Q744 115 kV Line and P1-2:A15:50:_Kern-Tevis-Stockdale 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Wheeler Ridge Jct Substation Project
KRN-T-34	KERN PW2-KERN PW1 70 kV #1 Line	P1-2:A15:21:_Kern-Old River #2 (Kern-Panama) 70 kV Line and P1-3:A15:24:_Kern PP 115/70 kV Transformer #1	P6	N-1-1	N/A		140.77	144.53	140.67				Action Plan. Kern PP 115 kV Area Reinforcement Project
KRN-T-35	KERN PWR-KERNWATR 115 #1 Line	P1-2:A15:44:_Kern-Live Oak 115 kV Line and P1-2:A15:35:_Kern PP-Seventh Standard 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Kern PP 115 kV Area Reinforcement Project
KRN-T-36	MIDWAY 115/230 kV #1 Bank	P1-3:A15:16:_Midway 230/115 kV Transformer #2 and P1-3:A15:17:_Midway 230/115 kV Transformer #3	P6	N-1-1	89.80	N/A	98.98	106.37	119.11				Mitigation under review
KRN-T-37	MIDWAY 115/230 kV #2 Bank	P1-3:A15:15:_Midway 230/115 kV Transformer #1 and P1-3:A15:17:_Midway 230/115 kV Transformer #3	P6	N-1-1	89.80	N/A	98.98	106.37	119.11				Mitigation under review

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					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A	N/A	
KRN-T-38	MIDWAY 115/230 kV #3 Bank	P1-3:A15:15: _Midway 230/115 kV Transformer #1 and P1-3:A15:16: _Midway 230/115 kV Transformer #2	P6	N-1-1	88.26	N/A	95.99	103.34	116.13				Mitigation under review
KRN-T-39	MIDWAY-CYMRIC 115 kV #1 Line	P1-2:A15:72: _Midway-Taft 115 kV Line and P1-2:A15:73: _Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	94.42	110.60	156.26				Mitigation under review
KRN-T-40	MIDWAY-OXYBVHTP 115 kV #1 Line	P1-2:A15:73: _Taft-Chalk Cliff 115 kV Line and P1-2:A15:71: _Midsun-Midway 115 kV Line	P6	N-1-1	N/A	N/A	99.54	116.59	158.29				Mitigation under review
KRN-T-41	TAFT A-TX_BV_HL 70 kV #1 Line	P1-2:A15:72: _Midway-Taft 115 kV Line and P1-2:A15:73: _Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	101.17	104.40	112.87				Mitigation under review
KRN-T-42	OLD RIVR-OLD_RVR1_TP 70 kV #1 Line	P1-3:A15:25: _Kern PP 115/70 kV Transformer #2 and P1-2:A15:85: _Kern PP 70 kV Bus Tie Breaker	P6	N-1-1	Diverged	Diverged		N/A	N/A				Action Plan. Wheeler Ridge Jct Subatation Project
KRN-T-43	OLD_RVR1_TP-PANMJCT1 70 kV #1 Line	P1-3:A15:25: _Kern PP 115/70 kV Transformer #2 and P1-2:A15:85: _Kern PP 70 kV Bus Tie Breaker	P6	N-1-1	Diverged		86.85	89.69	86.80				Action Plan. Wheeler Ridge Jct Subatation Project/Midway-Kern PP #1, #3 & #4 230 kV Line Capacity Increase Project
KRN-T-44	OXYBVHTP-TAFT 115 kV #1 Line	P1-2:A15:71: _Midsun-Midway 115 kV Line and P1-2:A15:73: _Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	80.93	120.02				Mitigation under review

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Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A	N/A	
KRN-VD-01	CARNERAS 70 kV	P1-1:A15:27:_CHLKCLF+ 9.11 Generator ID 1 and P1-2:A15:72:_Midway-Taft 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	7.796				Mitigation under review
KRN-VD-02	CELERON 70 kV	P1-1:A15:27:_CHLKCLF+ 9.11 Generator ID 1 and P1-2:A15:72:_Midway-Taft 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	7.703				Mitigation under review
KRN-VD-03	COPUS_D 70 kV	P1-1:A15:60:_S_KERN 0.36 Generator ID 1 and P1-2:A15:82:_Kern-Old River #1 70 kV Line	P3	N-1/G-1	N/A	N/A	8.799	8.434	8.774				Mitigation under review
KRN-VD-04	COPUS_E 70 kV	P1-1:A15:60:_S_KERN 0.36 Generator ID 1 and P1-2:A15:97:_Kern-Old River #1 70 kV Line	P3	N-1/G-1	N/A	N/A	8.8	8.434	8.774				Mitigation under review
KRN-VD-05	KERNRDGE 115 kV	P1-1:A15:28:_KERNRDGE 9.11 Generator ID 1 and P1-2:A15:23:_Midway-Temblor 115 kV Line	P3	N-1/G-1	11.316	11.21	12.19	12.19	11.961				Mitigation under review
KRN-VD-06	KNG_ELIS 70 kV	P1-1:A15:27:_CHLKCLF+ 9.11 Generator ID 1 and P1-2:A15:72:_Midway-Taft 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	7.699				Mitigation under review
KRN-VD-07	S_KERN 70 kV	P1-1:A15:60:_S_KERN 0.36 Generator ID 1 and P1-2:A15:82:_Kern-Old River #1 70 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Mitigation under review
KRN-VD-08	TEMBLOR 115 kV	P1-1:A15:28:_KERNRDGE 9.11 Generator ID 1 and P1-2:A15:23:_Midway-Temblor 115 kV Line	P3	N-1/G-1	11.435	11.327	12.316	12.316	12.084				Mitigation under review

Study Area: **PG&E Kern**

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A	N/A	
KRN-V-01	CARNERAS 70 kV	P1-1:A15:27:_CHLKCLF+ 9.11 Generator ID 1 and P1-2:A15:72:_Midway-Taft 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	0.8766				Mitigation under review
KRN-V-02	CELERON 70 kV	P1-1:A15:27:_CHLKCLF+ 9.11 Generator ID 1 and P1-2:A15:72:_Midway-Taft 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	0.8878				Mitigation under review
KRN-V-03	COPUS_D 70 kV	P1-1:A15:60:_S_KERN 0.36 Generator ID 1 and P1-2:A15:97:_Kern-Old River #1 70 kV Line	P3	N-1/G-1	N/A	N/A	0.8914	0.8935	0.8922				Mitigation under review
KRN-V-04	COPUS_E 70 kV	P1-1:A15:60:_S_KERN 0.36 Generator ID 1 and P1-2:A15:97:_Kern-Old River #1 70 kV Line	P3	N-1/G-1	N/A	N/A	0.8914	0.8935	0.8922				Mitigation under review
KRN-V-05	KERNRDGE 115 kV	P1-1:A15:28:_KERNRDGE 9.11 Generator ID 1 and P1-2:A15:23:_Midway-Temblor 115 kV Line	P3	N-1/G-1	0.9231	0.9222	0.911	0.9103	0.9101				Mitigation under review
KRN-V-06	KNG_ELIS 70 kV	P1-1:A15:27:_CHLKCLF+ 9.11 Generator ID 1 and P1-2:A15:72:_Midway-Taft 115 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	0.8883				Mitigation under review
KRN-V-07	S_KERN 70 kV	P1-1:A15:60:_S_KERN 0.36 Generator ID 1 and P1-2:A15:82:_Kern-Old River #1 70 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Mitigation under review
KRN-V-08	WHEELER 230 kV	P1-1:A15:58:_ORION 0.44 Generator ID 1 and P1-2:A15:89:_Midway-Wheeler Ridge #1 230 kV Line	P3	N-1/G-1	N/A	N/A	N/A	N/A	N/A				Wheeler Ridge Jct Station Project
KRN-V-09	BAKRSFLD 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8547	0.8462	0.8553				Mitigation under review
KRN-V-10	BAKRSFLD 70 kV	P1-3:A15:24:_Kern PP 115/70 kV Transformer #2 and P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker	P6	N-1-1	N/A	N/A	0.8553	0.8471	0.8561				Mitigation under review. Bus reconfiguration
KRN-V-11	BPFFD 115 kV	P1-2:A15:71:_Midsun-Midway 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8811				Mitigation under review
KRN-V-12	CARNAT T 70 kV	P1-3:A15:24:_Kern PP 115/70 kV Transformer #2 and P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker	P6	N-1-1	N/A	N/A	0.8643	0.8565	0.8651				Mitigation under review
KRN-V-13	CARNATIO 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8627	0.8546	0.8633				Mitigation under review
KRN-V-14	CARNERAS 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8328				Mitigation under review
KRN-V-15	CELERON 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8445				Mitigation under review



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High/Low Voltage



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					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A		N/A
KRN-V-16	COPUS_D 70 kV	P1-2:A15:93:_Kern-Old River #1 70 kV Line and P1-3:A15:34:_South Kern Solar 70/34.5 kv GSU	P6	N-1-1	0.842	0.8464	0.8375	0.8317	0.8379				
KRN-V-17	COPUS_E 70 kV	P1-2:A15:97:_Kern-Old River #1 70 kV Line and P1-3:A15:33:_South Kern Solar 70/34.5 kv GSU	P6	N-1-1	0.842	0.8464	0.8375	0.8317	0.8379				
KRN-V-18	CUYAMA2 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8789				Mitigation under review
KRN-V-19	EISEN 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8444	0.8358	0.845				Mitigation under review
KRN-V-20	ELK HLLS 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8641				Mitigation under review
KRN-V-21	FELLOWSG 115 kV	P1-2:A15:71:_Midsun-Midway 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8915				Mitigation under review
KRN-V-22	GRMWY_SM 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8098	0.8004	0.8104				Mitigation under review. Bus reconfiguration
KRN-V-23	KERN PW2 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:23:_Kern PP 115/70 kV Transformer #1	P6	N-1-1	1.1038	1.1096	1.1001	N/A	N/A				Mitigation under review. Bus reconfiguration
KRN-V-24	KERN PW2 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	1.1038	1.1085	0.8614	0.8532	0.862				Mitigation under review. Bus reconfiguration
KRN-V-25	KNG_ELIS 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8451				Mitigation under review
KRN-V-26	KRN CNYN 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8645	0.8558	0.8651				Mitigation under review. Bus reconfiguration
KRN-V-27	MAGUNDEN 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8567	0.848	0.8573				Mitigation under review. Bus reconfiguration
KRN-V-28	MCKTTRCK 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.888				Mitigation under review
KRN-V-29	MDWY_P_S 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8886				Mitigation under review
KRN-V-30	MIDSET 115 kV	P1-2:A15:71:_Midsun-Midway 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8949				Mitigation under review
KRN-V-31	MIDSUN 115 kV	P1-2:A15:71:_Midsun-Midway 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8837				Mitigation under review

Study Area: **PG&E Kern**

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2020 Summer Peak	2020 SP Heavy Renewable & Min Gas Gen	2025 Summer Peak	2025 SP No AAEE	2025 Retirement of QF Generations	N/A	N/A	N/A	
KRN-V-32	MORGAN 115 kV	P1-2:A15:71:_Midsun-Midway 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8927				Mitigation under review
KRN-V-33	NORTHMWY 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8883				Mitigation under review
KRN-V-34	OLD RIVR 70 kV	P1-2:A15:82:_Kern-Old River #1 70 kV Line and P1-3:A15:33:_South Kern Solar 70/34.5 kv GSU	P6	N-1-1	0.8982	0.9021	0.8951	0.8902	0.8955				Action Plan. Wheeler Ridge Jct Substation Project
KRN-V-35	PANAMA 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8713	0.8634	0.8718				Mitigation under review. Bus reconfiguration
KRN-V-36	RIOBRVQF 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8621	0.8534	0.8627				Mitigation under review. Bus reconfiguration
KRN-V-37	S_KERN 70 kV	P1-2:A15:82:_Kern-Old River #1 70 kV Line and P1-3:A15:33:_South Kern Solar 70/34.5 kv GSU	P6	N-1-1	0.8522	0.8564	0.8479	0.8422	0.8483				Action Plan. Mitigation under review
KRN-V-38	SAN EMDO 70 kV	P1-2:A15:82:_Kern-Old River #1 70 kV Line and P1-3:A15:33:_South Kern Solar 70/34.5 kv GSU	P6	N-1-1	0.8741	0.8781	0.8704	0.8651	0.8708				Action Plan. Mitigation under review
KRN-V-39	TAFT 115 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8745				Mitigation under review
KRN-V-40	TEMBLOR 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8665				Mitigation under review
KRN-V-41	TX_BV_HL 70 kV	P1-2:A15:72:_Midway-Taft 115 kV Line and P1-2:A15:73:_Taft-Chalk Cliff 115 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	0.8838				Mitigation under review
KRN-V-42	WEEDPATCH_SF 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8256	0.8165	0.8262				Mitigation under review. Bus reconfiguration
KRN-V-43	WELLFILD 70 kV	P1-2:A15:100:_Kern PP 70 kV Bus Tie Breaker and P1-3:A15:24:_Kern PP 115/70 kV Transformer #2	P6	N-1-1	N/A	N/A	0.8075	0.7982	0.8082				Mitigation under review. Bus reconfiguration
KRN-V-44	WHEELER 230 kV	P1-2:A15:26:_Wheeler Ridge Jct-Wheeler Ridge 230 kV Line and P1-2:A15:102:_Midway-Wheeler Ridge #2 230 kV Line	P6	N-1-1	1.1415	1.1434	1.1219	1.1199	1.1187				Mitigation under review
KRN-V-45	WHEELER 230 kV	P1-2:A15:89:_Midway-Wheeler Ridge #1 230 kV Line and P1-2:A15:14:_Midway-LaPaloma #1 230 kV Line	P6	N-1-1	N/A	N/A	N/A	N/A	N/A				Action Plan. Wheeler Ridge Jct Substation Project